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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/568,594	02/17/2006	Tetsuro Mizushima	127100	7064
25944 7590 02/05/2008 OLIFF & BERRIDGE, PLC P.O. BOX 320850 ALEXANDRIA, VA 22320-4850			EXAMINER LAVARIAS, ARNEL C	
			ART UNIT 2872	PAPER NUMBER
			MAIL DATE 02/05/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/568,594	Applicant(s) MIZUSHIMA ET AL.	
	Examiner Arnel C. Lavarias	Art Unit 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☒ Claim(s) 9 and 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 February 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/17/06</u> | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Amendment*

1. The amendments to the specification of the disclosure in the preliminary amendment filed 2/17/06 are acknowledged and accepted.

### *Priority*

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Drawings*

3. The originally filed drawings were received on 2/17/06. Replacement drawings were also received on 2/17/06. These drawings are acceptable.

### *Specification*

4. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. *The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided.* The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

5. The abstract of the disclosure is objected to because of the following informalities:

Abstract, line 5- 'comprises' should read 'includes'.

Correction is required. See MPEP § 608.01(b).

6. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification. Examples of such errors are set forth below.

7. The disclosure is objected to because of the following informalities:

Page 9, line 14- 'while-light' should read 'white-light'

Page 16, line 3- 'recoded' should read 'recorded'.

Appropriate correction is required.

### ***Claim Objections***

8. Claims 7-10 are objected to because of the following informalities:

Claim 7 recites the limitation "the white-light reconstruction holographic recording layer region" in lines 3-4. There is insufficient antecedent basis for this limitation in the claim. It is noted that the limitation "a white-light reconstruction holographic recording layer region" similarly appears in lines 6-7 of Claim 7. Claims 8-10 are dependent on Claim 7, and hence inherit the deficiencies of Claim 7.

Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kita et al. (JP 06-274084 A), in view of Pu et al. (U.S. Patent No. 5483365) and Smith (U.S. Patent No. 4179182).

Kita et al. discloses a holographic recording medium and associated method of holographic recording (See for example Figures 1-3, 5) comprising, in a substantially identical plane, a white-light reconstruction holographic recording layer region (See for example Abstract; 3b in Figures 1, 5), at least in part of which a white-light reconstruction hologram is formed and a Fourier holographic recording layer region (See for example Abstract; 3a in Figures 1, 5), at least in part of which at least one hologram is recorded. Kita et al. additionally discloses a hologram formed in the white-light reconstruction holographic recording layer being a reflection hologram (See 3b in Figures 1, 5; it is noted that incident light and light reflected from both holograms 3a and 3b enter and leave the same top surface 1/2 and hence the hologram acts as a reflective hologram). Kita et al. does not specifically disclose the white-light reconstruction holographic recording layer region being 3  $\mu\text{m}$  to 40  $\mu\text{m}$  thick, the Fourier holographic recording layer region being 100  $\mu\text{m}$  to 5 mm thick and having multiplexed holograms, and irradiating as an object beam a two-dimensional pattern image created by a spatial light

modulator to the recording layer region. However, such hologram recording medium thickness dimensions, and the multiplexing ability of the Fourier holographic recording layer region are all commonly known in the art of holography. Further, the use of a spatial light modulator in the object beam is conventional in the art of holography. For example, Pu et al. teaches a conventionally known Fourier holographic recording system (See for example Figures 1-2) for recording multiplexed holograms (via peristrophic multiplexing) in a relatively 'thick' recording layer (of the order of 40 microns) (See for example 40 in Figures 1-2; col. 6, line 20-col. 7, line 8). Though Pu et al. does not specifically disclose thicknesses greater than 100 microns, such would have been obvious to one having ordinary skill in the art. Official notice is taken. Such would have been obvious specifically for the purpose of increasing the storage capacity of the recording medium, since other multiplexing techniques, such as shift, wavelength, angular, etc., may also be used in combination with peristrophic multiplexing to increase the storage capacity (See for example col. 6, line 66-col. 7, line 8). In addition, Pu et al. teaches the use of a spatial light modulator (See for example 50 in Figures 1-2) in the object/signal beam for introducing information onto the object/signal beam which is to irradiate the recording medium. Further, Smith teaches a known apparatus utilizing white-light reflection holograms for displaying an image (See for example Abstract; Figures 9-10), wherein the white-light hologram is formed of a relatively 'thick' recording material (See for example 18 in Figures 9-10; col. 1, lines 25-38; col. 2, lines 33-47, where the thickness is on the order of several microns). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the white-light

reconstruction holographic recording layer region be 3  $\mu\text{m}$  to 40  $\mu\text{m}$  thick, the Fourier holographic recording layer region be 100  $\mu\text{m}$  to 5 mm thick and have multiplexed holograms, and irradiating as an object beam a two-dimensional pattern image created by a spatial light modulator to the recording layer region, as taught by Pu et al. and Smith, in the recording medium of Kita et al., for the purpose of 1) increasing the storage capacity of the recording medium while minimizing cross-talk noise between recorded holograms, 2) minimize image aberrations on playback of the hologram due to thickness aberrations and variations, and 3) allow flexibility in providing any particular image to be recorded onto the recording medium based on the intended application.

***Allowable Subject Matter***

11. Claims 9-10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
12. Claims 9-10 would be allowable if rewritten to overcome the objection(s) set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent Application Publication US 2006/0203315 A1 to Haga et al.

Art Unit: 2872

Haga et al. is being cited to evidence a holographic recording medium (See for example 2 in Figures 1-2) similar to that disclosed in the instant application. However, Haga et al. is available as prior art against the instant application.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnel C. Lavarias whose telephone number is 571-272-2315. The examiner can normally be reached on M-F 9:30 AM - 6 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone B. Allen can be reached on 571-272-2434. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

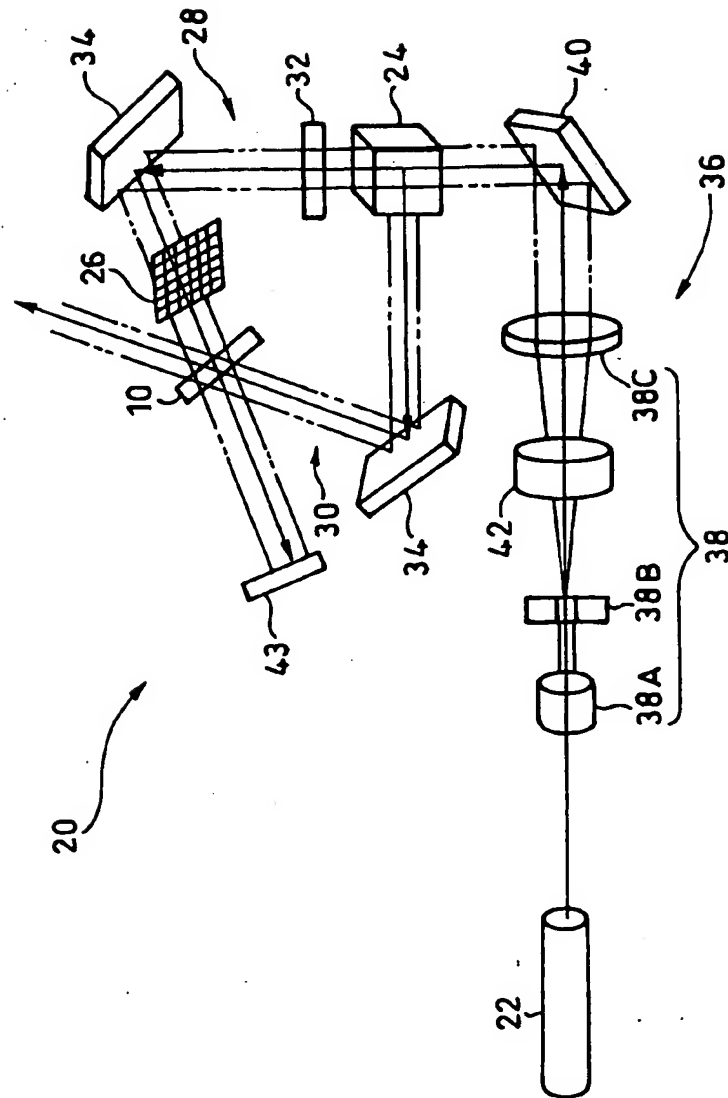
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Arnel C. Lavarias  
Primary Examiner  
Group Art Unit 2872  
2/1/08

  
ARNEL LAVARIAS  
PRIMARY PATENT EXAMINER



**Fig. 2**



Drawing Changes  
Approved  
KIC  
2/1/08